October 11, 1998

Memo by Alex Hildebrand on
Methods of Providing San Joaquin River Flows

Introduction

The need for more stream flow in the San Joaquin River system is a matter of substantial concern. There is no perfect solution for providing needed flow in the main-stem of this water-short river, but there are several available, basic approaches.

a) The San Joaquin River Agreement and the CVPIA propose to increase river flow for fish primarily by paying irrigation districts on the tributaries to release water for fish flow instead of for other purposes.

b) Purchase of water to which CVP or SWP contractors south of the Delta are entitled could be released from the Delta Mendota Canal (DMC) to the river via the Newman or other wasteway south of the Merced River either directly or by trading deliveries.

c) DMC water can be released to the river and then replaced by capturing and reexporting an equivalent amount of Delta water (recirculation).

Each method has advantages and impacts. CALFED should determine which approach, or combination of approaches is best overall. The alternatives should be analyzed and compared in regard to (1) the assurance that each alternative would provide VAMP flows or Control Plan flows at Vernalis in all years, (2) the adequacy of river water quality from the Merced down to the Stanislaus for smolt and fry survival and for diverters, (3) the provision of year-around compliance with the Vernalis salinity standard, (4) the protection of smolts and fry throughout the entire migration period and not just during the 31 day pulsed flow, (5) the ability to convert quickly to protection of delta smelt when that need overrides the protection of salmon, (6) the effect of the method, if any, on straying of adult salmon migrants, (7) the efficiency in use of water, (8) the cost of implementation, and (9) the ability to achieve "no net loss" both for contractors and for non-export water users in both quality and quantity.

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Conceptual differences among alternatives

I. The San Joaquin River Agreement

This alternative would not meet the Control Plan's 31 day pulse flow at Vernalis, but would provide the desired VAMP flows in most years. It is probably the best for imprinting the smolts that migrate during the pulse for later return. However, a Merced salmon must still distinguish imprints from the Stanislaus, the Tuolumne, and drainage from the CVP service area. It permits any desired ratio of Vernalis flow to export rate except as limited by available flow and minimum export rates.

It provides the pulse flow largely at the expense of available water for flow and quality at other times of the year. Fish and Game, EPA, and Fish and Wildlife biologists recently testified to the SWRCB that 35% of the smolt migration is before and after the pulse. The SJRA does not protect, and may impact, protection of those smolts. The SJRA also incorporates a USBR operating plan that would violate the Vernalis salinity standard both frequently and substantially. There has been no analysis of the possible effect on Merced smolts and fry due to selenium and salinity concentrations downstream of the Merced River. The plan pays no attention to the need to maintain summer flows required to protect other species and South Delta riparian rights.

II. CVPIA Purchases per USBR's PEIS

Purchases proposed from the tributaries under the CVPIA involve in even greater degree all the same benefits and problems as the SJRA. Furthermore, it is very improbable that purchases of the magnitude proposed can be attained, particularly in the years of greatest need.

III. Purchases from CVP and SWP Contractors South of the Delta

These purchases for augmentation of pulse flows would not deplete San Joaquin water supply availability at other times of the year. They would not exacerbate and could alleviate violations of the Vernalis salinity standard. They would improve flow and quality in the San Joaquin main stem downstream of the Merced. They would not impact water supplies for parties other than the sellers. They would not be as good as the SJRA in respect to imprinting the smolts that migrate during the pulse for tributary return. They would neither help nor reduce protection of the smolts that migrate before and after the 31 day pulse flow.

IV. Recirculation and Barrier Operation per SDWA's Proposal (Phase IIA and other SWRCB testimony)

This proposal is the least expensive and the most efficient in the use of water. It would not involve violations of the Vernalis salinity standard. It would not provide the pulsed flow by depleting summer flow. It would provide significant protection for the smolts that migrate before and after the pulsed flow. It would substantially improve water quality in the main stem of the river for early migrants. It would substantially improve flow and somewhat improve quality during the pulsed flow below the mouth of the Merced. It would improve smolt imprinting before the pulsed flow but would not be as good as the SJRA during the pulse.

This proposal requires that the export pumping rate during the pulse be increased by up to about 30% of the Vernalis flow to recapture an amount of water equal to what is released from the DMC to the river. However, only one of the panel of five fish biologists that recently testified before the SWRCB cited any evidence that smolt survival was related to export rates at least when the "fish" barrier is in place. Four of the five did allege that smolt survival was related to downstream river flow to Stockton. The barrier program which is included in SDWA's proposal would maintain that downstream flow for all smolts and not just for smolts that migrate during the pulsed flow.

The increased export rates required for recirculation can be largely, but not wholly, accomplished within the current biological opinion for delta smelt. Whenever delta smelt are determined to be at risk the export rates would be reduced and there can be a concurrent cessation or reduction in recycling and barrier operation. The increased export rates, in any event, will not increase the export of Sacramento water.

This is the only alternative that can achieve "no net loss" for all water users.

The SJRA DEIS does not adequately analyze and compare these alternatives. There may be other aspects to be analyzed in addition to those I have cited, but the choice should not be based on unsubstantiated, preconceived allegations.